



# CSC 1051 – 100

Algorithms & Data Structures I

**Fall 2021 | Mendel Hall G88 | Mondays & Wednesdays | 6:00 PM – 7:50 PM**

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Office Hours:

Mondays & Wednesdays

4 PM – 5:30 PM | Adjunct Lounge

## Course Description

Object-oriented design: objects, classes, methods, encapsulation; programming fundamentals: data, variables, selection, loops, arrays, input/output; exceptions.

This course offers you an opportunity to learn the fundamental concepts of writing a computer program, using a computer programming language. It introduces a new way to think about problems. It gives you tools that mirror real world problems with programmatic environments.

## Objectives

By the end of this course, you are expected to develop skills in the following topics:

1. Programming concepts
2. Programming languages
3. Object Oriented Programming Languages
4. Principle of Object-Oriented Programming design
  5. Classes
  6. Methods
  7. Data
  8. Variables
  9. Statements
  10. Expressions
  11. Loops
  12. Arrays
  13. Input/output
  14. Exception

## Required Text

Java Software Solutions, 9<sup>th</sup> edition

## Required Software/Hardware

OS: Windows | Mac OS | Linux

Code Editor: Visual Studio Code

SDK: Java Development Kit

## Course Requirement

Projects (80%)

Quizzes (20%)

## Grading Scale

Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
Grade	95	90	87	84	80	77	74	70	67	64	60

## Course Outline

Week #		Assigned Reading	Assigned Work
1	Introductions, Setting up environments	Chapter 1	Review chapter 1 Exercises
2	What is a computer?	Chapter 2	Review Chapter 2 Exercises
3	Data and Expressions	Chapter 3	Review Chapter 3 Exercises
4	Using Classes and Objects	Chapter 4	Review Chapter 4 Exercises
5	Writing Classes	Chapter 5	Review Chapter 5 Exercises
6	Conditionals and Loops	Chapter 6	Review Chapter 6 Exercises
7	More Conditionals and Loops	Chapter 7	Review Chapter 7 Exercises
8	Object-Oriented Design	Chapter 8	Review Chapter 8 Exercises
9	Arrays	Chapter 9	Review Chapter 9 Exercises
10	Inheritance	Chapter 10	Review Chapter 10 Exercises
11	Polymorphism	Chapter 11	Review Chapter 11 Exercises
12	Exceptions	Chapter 12	Review Chapter 12 Exercises
13	Recursion	Chapter 13	Review Chapter 13 Exercises

14	Collections	Chapter 14	Review Chapter 14 Exercises
15	Contingency		

## Attendance Policy

You are adults. As such, I will not be enforcing any kind of attendance policy. You will be held responsible for the content of the class as denoted in the course outline above. Having said that, if you missed class, I am available to you for any questions you may have, provided you have read the course material as indicated in the outline above.

## Late Assignment

You are required to submit your projects on the specified date and time. If you miss a project deadline, you have a grace period of up to 1 course week, after the deadline. After that, your project would not be accepted, even if it were completed.

## Extra Credit

There will be no extra credit. However, if you feel you are above the content of the class, I will afford you an opportunity to test out of the class. This means I will test you on the topics the class is expected to cover. If you attain a passing grade, you have the option to retain that grade and be excused from the class for the rest of the semester.

## Quizzes

There will be a total of 14 quizzes. Each quiz will be a short programming exercise, usually 1 or 2 questions, and very short. A quiz will follow the completion of each chapter. So, expect at least 1 quiz at the beginning of every week, following the first week. The quiz is meant to prepare you for the projects. Quizzes are graded on a 0%-100% grading scale.

## Projects

There will be a total of 4 projects. Each project will build on the previous one, as the result of all the projects will be a complete program. You will develop your projects based on the skills you acquire over the course of the semester. When you submit a project, you are expected to retain the original code, as you will be expected to continue where you left off for the next project. Projects are graded on a 0%-100% scale.

## Code Submission Policy

**This is very important!** Any code you submit must be free of compile-time errors. As you will learn, this means your code must run. If your code fails to run, you will earn 0% for that quiz or project. If your code runs, but the logic is incorrect or doesn't behave as expected, you will still earn some points. Only non-runnable code will earn an automatic 0%. **Please remember this! It is very important that your code runs!**

## Office of Disabilities (ODS) and Learning Support Services (LSS)

It is the policy of Villanova to make reasonable academic accommodations for qualified individuals with disabilities. Go to the Learning Support Services website <http://learningsupportservices.villanova.edu> for registration guidelines and instructions. For physical access or temporarily disabling conditions, please contact the Office of Disability Services at **610-519-3209 or 610-519-4095**, or email [ods@villanova.edu](mailto:ods@villanova.edu). Registration is needed in order to receive accommodations.

## Academic Integrity

All students are expected to uphold Villanova's Academic Integrity Policy and Code. Any incident of academic dishonesty will typically result in an "F" for the assignment and will be reported to the appropriate university officials. See the statement of the full policy on the Graduate Arts and Sciences website. You can view the Academic Integrity Policy and Code, as well as other useful information related to writing papers, at the Academic Integrity Gateway web site: <https://library.villanova.edu/research/subject-guides/academicintegrity>.

## Absences for Religious Holidays

Villanova University makes every reasonable effort to allow members of the community to observe their religious holidays, consistent with the University's obligations, responsibilities, and policies. Students who expect to miss a class or assignment due to the observance of a religious holiday should discuss the matter with their professors as soon as possible, normally at least two weeks in advance. Absence from classes or examinations for religious reasons does not relieve students from responsibility for any part of the course work required during the absence.

<https://www1.villanova.edu/villanova/provost/resources/student/policies/religiousholidays.html>.